09/858,204

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L1	probe$1 near5 cleav$4 near5 oxid$5	1	L1

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L1: Entry 1 of 1 File: USPT Feb 22, 2000

DOCUMENT-IDENTIFIER: US 6027890 A
**** See image for Certificate of Correction ****
TITLE: Methods and compositions for enhancing sensitivity in the analysis of biological-based assays

CLAIMS:

27. The method according to claim 20 wherein said tagged probes are cleaved by a method selected from the group consisting of oxidation, reduction, acid-labile, base labile, enzymatic, electrochemical, heat and photolabile methods.

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=> s probe# (10a) cleav#### (10a) oxid#####
L1          20 PROBE# (10A) CLEAV#### (10A) OXID#####

=> dup rem l1
PROCESSING COMPLETED FOR L1
L2           15 DUP REM L1 (5 DUPLICATES REMOVED)

=> d l2 1-15 bib ab kwic

L2   ANSWER 1 OF 15  CAPLUS  COPYRIGHT 2003 ACS
AN   2002:522501  CAPLUS
DN   137:89422
TI   Column-based hybridization assay involving nuclease cleavage of
     probe-target nucleic acid complexes
IN   Harbron, Stuart
PA   UK
SO   U.S. Pat. Appl. Publ., 13 pp., Cont.-in-part of U.S. Ser. No. 403,105.
     CODEN: USXXCO
DT   Patent
LA   English
FAN.CNT 3
     PATENT NO.         KIND  DATE           APPLICATION NO.  DATE
     ---------------    ----  --------       ---------------  --------
PI   US 2002090617       A1   20020711       US 2001-833918   20010413
     WO 2000022165       A1   20000420       WO 1999-GB3383   19991012
         W:  AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,
             CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
             IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
             MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
             SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM,
             AZ, BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
             DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
             CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
     US 6423492          B1   20020723       US 1999-403105   19991014
PRAI GB 1998-22067       A    19981012
     WO 1999-GB3383      W    19991012
     US 1999-403105      A2   19991014
     GB 1997-7531        A    19970414
     WO 1998-GB1057      W    19980409
AB   The present invention provides a method for detecting a single-stranded
     target nucleic acid comprising the steps of: (a) forming a hybrid between
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a target nucleic acid and a nucleic acid probe, said nucleic acid probe labeled with an enzyme reagent which hydrolyzes single-stranded nucleic acid but is substantially without effect on double-stranded nucleic acid, said hybrid formed under conditions of pH which are outside the activity range of said enzyme reagent; (b) adjusting said pH to a value within the activity range of said enzyme reagent, whereby said enzyme reagent substantially hydrolyzes any single-stranded nucleic acid present; and (c) contacting said hybrid with a detection reagent to detect the hybrid. Prior to step (c) the nucleic acid probe or hybrid is brought into contact with a solid support to attach it thereto, or the nucleic acid probe or hybrid is brought into contact with a capture reagent, optionally linked to a solid support, to capture the nucleic acid probe or hybrid; and the capture reagent or solid support on which the hybrid is immobilized is washed with a washing fluid while the capture reagent or solid support is contained within a vessel that is adapted to retain the capture reagent or solid support but not to retain fluid in which the capture reagent or solid support is dispersed, whereby material which has not been captured by the capture reagent or otherwise immobilized on a solid support is eluted from the vessel. It has now been found that the general method disclosed in the above invention may be further improved by adapting it for use with reagents immobilized onto a suitable material contained in a column. A column-based procedure not only allows more efficient washing of the bound hybrid to remove unbound components, but is also advantageously amenable to automation.

IT 9000-88-8, D-Amino acid **oxidase**
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); CAT (Catalyst use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(apo-; column-based hybridization assay involving nuclease **cleavage** of **probe**-target nucleic acid complexes)

IT 9001-37-0, Glucose **oxidase**
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); CAT (Catalyst use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(apo; column-based hybridization assay involving nuclease **cleavage** of **probe**-target nucleic acid complexes)

L2 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 2002:189785 CAPLUS
TI Alkane complexes as intermediates in C-H bond activation reactions
AU Vetter, Andrew J.; Northcutt, Todd O.; Jones, William D.
CS Department of Chemistry, University of Rochester, Rochester, NY, 14627, USA
SO Abstracts of Papers, 223rd ACS National Meeting, Orlando, FL, United States, April 7-11, 2002 (2002), INOR-182 Publisher: American Chemical Society, Washington, D. C.
CODEN: 69CKQP
DT Conference; Meeting Abstract
LA English
AB A series of alkyl hydride complexes have been studied of the type Tp'Rh(L)(R)(H) where L=neopentylisocyanide and R=Me, Et, n-Pr, n-Bu, i-Pr and s-Bu. The secondary alkyl complexes are found to rearrange to primary alkyl complexes prior to elimination of alkane. Stereochem. probes are used to investigate the reversibility of the C-H bond-forming/bond-cleavage steps of the reactions. Deuterium labeling is used to monitor the rearrangements, and the isotope effect for reductive bond formation is detd. Activation of the C-H/C-D bonds in CH2D2 is examd. to **probe** the kinetic selectivity for **oxidative** bond **cleavage**.
These results are combined to give an overall picture of the energetics of C-H bond activation in which the (commonly obsd.) inverse equil. isotope effect arises as a result to two opposing normal kinetic isotope effects. A summary of the relative rates of oxidative bond cleavage, migration, and alkane dissocn. will be presented and compared with other observations in the literature. Relative rates of activation of several alkane C-H bonds

will be compared.

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L2 ANSWER 3 OF 15 MEDLINE DUPLICATE 1
AN 2001164224 MEDLINE
DN 21163329 PubMed ID: 11261981
TI Oxidation of 7-deazaguanine by one-electron and oxo-transfer oxidants: mismatch-dependent electrochemistry and selective strand scission.
AU Yang I V; Thorp H H
CS Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina 27599-3290, USA.
SO INORGANIC CHEMISTRY, (2001 Mar 26) 40 (7) 1690-7.
Journal code: 0366543. ISSN: 0020-1669.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200105
ED Entered STN: 20010529
Last Updated on STN: 20010529
Entered Medline: 20010521

AB Addition of oligonucleotides containing 7-deazaguanine (Z) to solutions containing Ru(dmb)3(2+) (dmb = 4,4'-dimethyl-2,2'-bipyridine) produces an enhancement in the oxidative current in the cyclic voltammogram of the metal complex that can be used, through digital simulation, to determine the rate of oxidation of 7-deazaguanine by Ru(dmb)3(3+). The measured rate constants are about 10 times higher than those for oxidation of guanine by Ru(bpy)3(3+), even though the redox potential of Ru(dmb)3(3+/2+) is 200 mV lower. A potential of 0.75 V (vs Ag/AgCl) can therefore be estimated for the oxidation of 7-deazaguanine, which can be selectively oxidized over guanine when Ru(dmb)3(3+) is the oxidant. The rate of oxidation was much faster in single-stranded DNA, and the difference between rates of single-stranded and duplex DNA was higher than for guanine. The oxidation rate was also sensitive to the presence of a single-base mismatch at the 7-deazaguanine in the order Z.C < Z.T < Z.G approximately Z.A < single-stranded. The Z.T mismatch was much more readily distinguished than the G.T mismatch, consistent with the overall greater sensitivity to secondary structure for Z. The **oxidation** reaction was also **probed** by monitoring piperidine-labile **cleavage** at the Z nucleotide, which could be generated by treatment with either photogenerated Ru(bpy)3(3+) or the thermal oxidant Ru(tpy)(bpy)O2+ (tpy = 2,2',2' '-terpyridine). These oxidants gave qualitatively similar selectivities to the electron-transfer rates from cyclic voltammetry, although the magnitudes of the selectivities were considerably lower on the sequencing gels.

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generated by treatment with either photogenerated Ru(bpy)3(3+) or the thermal oxidant Ru(tpy)(bpy)O2+ (tpy. . .

L2 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 2001:637410 CAPLUS
TI Alkane complexes as intermediates in C-H bond activation reactions
AU Jones, William D.; Northcutt, Todd O.; Wick, Douglas D.; Vetter, Andrew J.
CS Department of Chemistry, University of Rochester, Rochester, NY, 14627, USA
SO Abstracts of Papers, 222nd ACS National Meeting, Chicago, IL, United States, August 26-30, 2001 (2001), CATL-024 Publisher: American Chemical Society, Washington, D. C.
CODEN: 69BUZP
DT Conference; Meeting Abstract
LA English
AB A series of alkyl hydride complexes have been studied of the type Tp'Rh(L)(R)(H) where L=neopentylisocyanide and R=Me, Et, n-Pr, n-Bu, i-Pr and s-Bu. The secondary alkyl complexes are found to rearrange to primary alkyl complexes prior to elimination of alkane. Stereochem. probes are used to investigate the reversibility of the C-H bond-forming/bond-cleavage steps of the reactions. Deuterium labeling is used to monitor the rearrangements, and the isotope effect for reductive bond formation is detd. Photochem. activation of the C-H/C-D bonds in CH2D2 is examd. to **probe** the kinetic selectivity for **oxidative** bond **cleavage**. These results are combined to give an overall picture of the energetics of C-H bond activation in which the (commonly obsd.) inverse equil. isotope effect arises as a result to two opposing normal kinetic isotope effects. A summary of the relative rates of oxidative bond cleavage, migration, and alkane dissocn. will be presented and compared with other observations in the literature.
AB A series of alkyl hydride complexes have been studied of the type Tp'Rh(L)(R)(H) where L=neopentylisocyanide and R=Me, Et, n-Pr, n-Bu, i-Pr and s-Bu. The secondary alkyl complexes are found to rearrange to primary alkyl complexes prior to elimination of alkane. Stereochem. probes are used to investigate the reversibility of the C-H bond-forming/bond-cleavage steps of the reactions. Deuterium labeling is used to monitor the rearrangements, and the isotope effect for reductive bond formation is detd. Photochem. activation of the C-H/C-D bonds in CH2D2 is examd. to **probe** the kinetic selectivity for **oxidative** bond **cleavage**. These results are combined to give an overall picture of the energetics of C-H bond activation in which the (commonly obsd.) inverse equil. isotope effect arises as a result to two opposing normal kinetic isotope effects. A summary of the relative rates of oxidative bond cleavage, migration, and alkane dissocn. will be presented and compared with other observations in the literature.

L2 ANSWER 5 OF 15 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V.
AN 97280842 EMBASE
DN 1997280842
TI The ratio between endocyclic and exocyclic cleavage of pyranoside acetals is dependent upon the anomer, the temperature, the aglycon group, and the solvent.
AU Liras J.L.; Lynch V.M.; Anslyn E.V.
CS E.V. Anslyn, Dept. of Chemistry and Biochemistry, University of Texas, Austin TX 78712, United States
SO Journal of the American Chemical Society, (1997) 119/35 (8191-8200).
Refs: 42
ISSN: 0002-7863 CODEN: JACSAT
CY United States
DT Journal; Article
FS 037 Drug Literature Index
LA English
SL English
AB Several cis-fused decalin pyranosides with intramolecular nucleophiles of

high effective molarity were studied to determine the ratio between endocyclic and exocyclic cleavage in specific-acid-catalyzed solvolysis reactions. The molecular design that allows a differentiation between endo- or exocyclic cleavage is the symmetry and asymmetry of the respective oxocarbenium ion intermediates. The synthesis of the molecular probes involves eight steps from a known compound, and proceeds via a key intermediate functionalized with three different **oxidation** states. A crystal structure confirmed the relative stereochemistry of the **probes**. A quantifiable percentage of endocyclic **cleavage** for .beta.-pyranosides was found for all reaction conditions, whereas .alpha.-pyranosides show exclusively exocyclic cleavage. The percent of endocyclic cleavage for .beta.-pyranosides is dependent upon the temperature, the aglycon group, and the solvent. At lower temperatures endocyclic cleavage increases. The .DELTA.H(.noteq.) and .DELTA.S(.noteq.) for endocyclic and exocyclic cleavage were determined to be 19.2 .+-. 1.4 kcal/mol and -12.6 .+-. 6.1 eu, and 22.8 .+-. 1.1 kcal/mol and 3.7 .+-. 3.8 eu in methanol, respectively. These values support the theory of stereoelectronic control in the cleavage of pyranoside acetals. Pyranosides with phenyl aglycon groups exhibit significantly lower percentages of endocyclic cleavage than pyranosides with alkyl aglycon groups. Although an exact percentage of endocyclic cleavage of pyranosides in water could not be determined, it appears to be approximately the same or greater than that which occurs in methanol. The addition of non-hydrogen-bonding/non-nucleophilic solvents increased the percent of endocyclic cleavage. The results are interpreted to support some extent of nucleophilic assistance in the endocyclic solvolysis of pyranosides, stereoelectronic control on the site of cleavage, and the possibility of endocyclic cleavage at the active site of glycosyl transfer enzymes.

AB . . . the molecular probes involves eight steps from a known compound, and proceeds via a key intermediate functionalized with three different **oxidation** states. A crystal structure confirmed the relative stereochemistry of the **probes**. A quantifiable percentage of endocyclic **cleavage** for .beta.-pyranosides was found for all reaction conditions, whereas .alpha.-pyranosides show exclusively exocyclic cleavage. The percent of endocyclic cleavage for. . .

L2 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 1997:572771 CAPLUS
DN 127:268480
TI Scanning probe investigations of cleaved heterostructure layers
AU Ebel, J. L.; Schlesinger, T. E.; Reed, M. L.
CS Solid State Electronics Directorate, Wright Laboratory, Wright-Patterson AFB, OH, 45433, USA
SO Materials Research Society Symposium Proceedings (1997), 451(Electrochemical Synthesis and Modification of Materials), 251-256
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB We present differential oxidn. rate effects in cleaved heterostructures contg. GaAs, AlGaAs, InGaP and InGaAs measured by at. force microscopy (AFM). AFM images of the cleaved structures are presented, along with step height measurements at the different material interfaces. These height differences are the result of differences in oxidn. rates of the heterostructure layers. The method used to ext. the small step-height information from the images is also presented. Typical step heights range from about one to twenty angstroms for the structures measured. We have also obsd. steps which mimic the oxidn. steps, but which are not related to the epitaxially grown material structure. However, in these cases images of both sides of the cleaved pieces show inverse (rather than similar) topogs. We also present results of digital etching techniques used to enhance the step heights based on the same differential oxidn. mechanism.
IT **Oxidation**

(mechanism; scanning **probe** investigations of **oxidn**.
of **cleaved** heterostructure layers)

IT Air
Etching
Etching kinetics
Oxidation kinetics
(scanning **probe** investigations of **oxidn**. of
cleaved heterostructure layers)

IT 1303-00-0, Gallium arsenide, reactions 7647-01-0, Hydrochloric acid, reactions 7664-39-3, Hydrogen fluoride, reactions 7722-84-1, Hydrogen peroxide, reactions 37382-15-3, Aluminum gallium arsenide ((Al,Ga)As) 106070-25-1, Gallium indium arsenide 106312-00-9, Gallium indium phosphide
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(scanning **probe** investigations of **oxidn**. of
cleaved heterostructure layers)

L2 ANSWER 7 OF 15 MEDLINE DUPLICATE 2
AN 97137527 MEDLINE
DN 97137527 PubMed ID: 8982864
TI Cloning, sequence analysis, and expression in Escherichia coli of the gene encoding the Candida utilis urate oxidase (uricase).
AU Koyama Y; Ichikawa T; Nakano E
CS Research and Development Division, Kikkoman Corporation, Chiba.
SO JOURNAL OF BIOCHEMISTRY, (1996 Nov) 120 (5) 969-73.
Journal code: 0376600. ISSN: 0021-924X.
CY Japan
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-D32043; GENBANK-D49974; GENBANK-A25776; GENBANK-A31774; GENBANK-A38097; PIR
EM 199703
ED Entered STN: 19970327
Last Updated on STN: 19970327
Entered Medline: 19970320
AB A urate **oxidase** (uricase) gene was cloned from Candida utilis with an oligonucleotide **probe** based on the amino acid sequence of cyanogen bromide-**cleaved** uricase. The uricase gene contains 909 base pairs and encodes a protein with a predicted mass of 34,193 Da. Candida uricase was similar (49% match in amino acid sequence) to the uricase from Aspergillus flavus. The uricase from Candida utilis has four cysteines and one of them, Cys168, participates in the enzyme activity. This enzyme was expressed to a level of about 20% of total cellular protein in an Escherichia coli cell as a soluble and functional form.
AB A urate **oxidase** (uricase) gene was cloned from Candida utilis with an oligonucleotide **probe** based on the amino acid sequence of cyanogen bromide-**cleaved** uricase. The uricase gene contains 909 base pairs and encodes a protein with a predicted mass of 34,193 Da. Candida. . .

L2 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 1996:376771 CAPLUS
DN 125:151759
TI Scanning probe microscopy of cleaved molybdates: .alpha.-MoO3(010), Mo18O52(100), Mo8O23(010), and .eta.-Mo4O11(100)
AU Smith, Richard L.; Rohrer, Gregory S.
CS Dep. Materials Sci. and Eng., Carnegie Mellon Univ., Pittsburgh, PA, 15213-3890, USA
SO Journal of Solid State Chemistry (1996), 124(1), 104-115
CODEN: JSSCBI; ISSN: 0022-4596
PB Academic
DT Journal

LA English
AB Scanning probe microscopy was used to examine the cleaved surfaces of 4 binary molybdates, .alpha.-MoO3 (010), Mo18O52 (100), Mo8O23 (010), and .eta.-Mo4O11 (100). The Mo18O52 (100) and Mo8O23 (010) surfaces were imaged in air and vacuum by using STM. The contrast assocd. with 2 types of surface/crystallog. shear (CS) plane intersections was identified unambiguously; shear normal to the surface creates a line of vertical relief 1.5 .ANG. high and shear in the surface plane creates a line of dark contrast. The contrast from the surface/CS plane intersection arises, in part, from local variations in the electronic properties. These signatures are distinguished easily from features on the fully oxidized .alpha.-MoO3 (010) surface. STM images of .eta.-Mo4O11 (100) reveal a surface terminated by tetrahedral groups. In each case, the authors find that the at.-scale contrast can be interpreted based on the arrangement of surface polyhedra that is expected to result from cleavage of the longest, weakest bonds.
IT **Oxidation** catalysts
Surface structure
(scanning **probe** microscopy of **cleaved** molybdate surfaces and at.-scale contrast resulting from cleavage of longest and weakest bonds)
IT 1313-27-5, Molybdenum trioxide, properties 12033-38-4, Molybdenum **oxide** (Mo4O11) 12058-34-3, Molybdenum **oxide** (Mo8O23) 12163-89-2, Molybdenum **oxide** (Mo18O52) 135339-31-0, Lithium molybdenum **oxide** (Li0.25MoO3)
RL: PRP (Properties)
(scanning **probe** microscopy of **cleaved** molybdate surfaces and at.-scale contrast resulting from cleavage of longest and weakest bonds)

L2 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 1992:647593 CAPLUS
DN 117:247593
TI Transaminative desilylation of (aminomethyl)trimethylsilane and transitory inactivation of plasma amine oxidase
AU Wang, F.; Venkataraman, B.; Klein, M. E.; Sayre, L. M.
CS Dep. Chem., Case West. Reserve Univ., Cleveland, OH, 44106, USA
SO Journal of Organic Chemistry (1992), 57(25), 6687-9
CODEN: JOCEAH; ISSN: 0022-3263
DT Journal
LA English
AB (Aminomethyl)trimethylsilane (AMTMS) has been reported to undergo C-Si bond **cleavage** upon 1-electron **oxidn.**, and has been used as a **probe** for flavin-dependent mitochondrial monoamine **oxidase** which is believed to **oxidize** amines through such mechanism. Here, it is shown that AMTMS undergoes transaminative desilylation (to HCHO) under the influence of the active carbonyl reagents, isatin, pyridoxal, 2,2-di-tert-butyl-1,4-benzoquinone (all slowly), and 3,5-di-tert-butyl-1,2-benzoquinone (rapidly). It is also shown that AMTMS effects a potent and rapid inactivation of bovine plasma amine oxidase (BPAO), although the activity returns completely in a 1st-order temp.-dependent manner. The exptl. data, including a concn.-dependent protection by benzylamine against inactivation, and detection of HCHO as a product, suggested that AMTMS is a mechanism-based inactivator of BPAO. Although enzyme-mediated transamination of AMTMS could be generating an electrophilic trimethylsilyl cation capable of silylating an active site nucleophile, further studies are needed to clarify chem. details of the transitory enzyme inactivation.
AB (Aminomethyl)trimethylsilane (AMTMS) has been reported to undergo C-Si bond **cleavage** upon 1-electron **oxidn.**, and has been used as a **probe** for flavin-dependent mitochondrial monoamine **oxidase** which is believed to **oxidize** amines through such mechanism. Here, it is shown that AMTMS undergoes transaminative desilylation (to HCHO) under the influence of the active carbonyl

reagents, isatin, pyridoxal, 2,2-di-tert-butyl-1,4-benzoquinone (all slowly), and 3,5-di-tert-butyl-1,2-benzoquinone (rapidly). It is also shown that AMTMS effects a potent and rapid inactivation of bovine plasma amine oxidase (BPAO), although the activity returns completely in a 1st-order temp.-dependent manner. The exptl. data, including a concn.-dependent protection by benzylamine against inactivation, and detection of HCHO as a product, suggested that AMTMS is a mechanism-based inactivator of BPAO. Although enzyme-mediated transamination of AMTMS could be generating an electrophilic trimethylsilyl cation capable of silylating an active site nucleophile, further studies are needed to clarify chem. details of the transitory enzyme inactivation.

L2 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 1992:561799 CAPLUS
DN 117:161799
TI **Oxidation** effects on **cleaved** multiple quantum well surfaces in air observed by scanning **probe** microscopy
AU Howells, S.; Gallagher, M. J.; Chen, T.; Pax, P.; Sarid, D.
CS Opt. Sci. Cent., Univ. Arizona, Tucson, AZ, 85721, USA
SO Applied Physics Letters (1992), 61(7), 801-3
CODEN: APPLAB; ISSN: 0003-6951
DT Journal
LA English
AB At. force microscopy (AFM) and scanning tunneling microscopy (STM) of quantum well structures can give an independent method of measuring superlattice spacing and uniformity without having to resort to more involved techniques requiring intricate sample prepn. The first AFM images of cleaved InGaAs/InP multiple quantum wells were shown, and were compared with STM images taken of the same heterostructure. The images were stable in air for over a day. Based on these results, the mechanism for contrast in the images is due to an oxide layer that grows primarily on the InGaAs wells and not on the InP barriers. Both STM and AFM clearly resolve the individual wells of the heterostructure, although STM measured a larger corrugation than an AFM. STM also exhibited superior lateral resoln. of about 2 nm while AFM had a lateral resoln. of approx. 6 nm.
TI **Oxidation** effects on **cleaved** multiple quantum well surfaces in air observed by scanning **probe** microscopy

L2 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2003 ACS DUPLICATE 3
AN 1991:77638 CAPLUS
DN 114:77638
TI Non-electron-transfer quinone-mediated **oxidative cleavage** of cyclopropylamines. Implications regarding their utility as **probes** of enzyme mechanism
AU Sayre, Lawrence M.; Singh, Malvinder P.; Kokil, Pandurang B.; Wang, Fengjiang
CS Dep. Chem., Case West. Reserve Univ., Cleveland, OH, 44106, USA
SO Journal of Organic Chemistry (1991), 56(4), 1353-5
CODEN: JOCEAH; ISSN: 0022-3263
DT Journal
LA English
AB Cyclopropylamines have been used as mechanistic probes for enzymes involved in oxidative metab., wherein ring opening leading to suicide enzyme inactivation is consistent with a mechanism involving initial one-electron oxidn. of the amine. Here it is shown that 3,5-di-tert-butyl-1,2-benzoquinone effects oxidative cleavage of cyclopropylamine and 1-phenylcyclopropylamine to produce covalent adducts by way of o-quinoneimine intermediates rather than via a bimol. electron-transfer reaction. These reactions may serve as a model for the cyclopropylamine inactivation of plasma amine oxidase (copper-contg.), which contains a covalently bound quinone cofactor.
TI Non-electron-transfer quinone-mediated **oxidative cleavage** of cyclopropylamines. Implications regarding their utility as **probes** of enzyme mechanism

L2 ANSWER 12 OF 15 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1991:276097 BIOSIS
DN BA92:8712
TI PHOTOCHEMICAL AND PHOTOBIOLOGICAL PROPERTIES OF 4 8 DIMETHYL-5'-ACETYLPSORALEN.
AU SAGE E; TRABALZINI L; CAPOZZI A; CONCONI M T; PASTORINI G; TAMARO M; BORDIN F
CS DEP. PHARMACEUTICAL SCI., PADUA UNIV., VIA MARZOLO 5, 35131 PADOVA, ITALY.
SO J PHOTOCHEM PHOTOBIOL B BIOL, (1991) 9 (1), 43-60.
CODEN: JPPBEG. ISSN: 1011-1344.
FS BA; OLD
LA English
AB The photochemical and photobiological properties of 4,8-dimethyl-5'-acetylpsoralen (AcPso), proposed for the photochemotherapy of some skin diseases, were investigated. The photoreaction of AcPso with DNA is weaker in the presence of air than in a nitrogen atmosphere, in terms of total photobinding and DNA cross-linking; when UVA irradiation is performed in air, AcPso behaves as a monofunctional reagent. The quenching effect of oxygen is related to the high capacity of AcPso to produce singlet oxygen. Furthermore, it is demonstrated that AcPso photoadducts are better producers of singlet oxygen than free AcPso in solution. Using DNA sequencing methodology, two modes of DNA photosensitization by AcPso are shown, these lead to the formation of photoadducts mainly at T residues (and at C to a lesser extent) and to photo-**oxidized** G residues probably via singlet oxygen. Chemical or enzymatic **cleavage** were used as **probes** in these experiments. A rapid assay for the detection of the photodynamic effect of a photosensitizer on DNA, involving oxygen, is also described. Finally, the cytotoxicity and genotoxicity of AcPso on E. coli WP2 cells appear to be related to its ability to form photoadducts, in particular cross-links, rather than to its capacity to produce singlet oxygen.
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L2 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 1989:403742 CAPLUS
DN 111:3742
TI Polynucleotide determination by hybridization assay using cleavage of selected sites
IN Urdea, Mickey S.
PA Chiron Corp., USA
SO U.S., 12 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4775619	A	19881004	US 1984-661508	19841016
	US 5118605	A	19920602	US 1988-251152	19880929
	CA 1340231	A1	19981215	CA 1988-579309	19881004
	US 5258506	A	19931102	US 1989-398711	19890825
	US 5430136	A	19950704	US 1990-559961	19900727
	US 5367066	A	19941122	US 1991-736445	19910724
	US 5380833	A	19950110	US 1991-806642	19911213
	US 5545730	A	19960813	US 1995-436125	19950508
	US 5578717	A	19961126	US 1995-436663	19950508
	US 5552538	A	19960903	US 1995-437581	19950509
PPAI	US 1984-661508	A2	19841016		

US 1988-251152 A2 19880929
EP 1988-309203 A 19881003
CA 1988-597309 A 19881004
JP 1988-250726 A 19881004
US 1989-398711 A2 19890825
US 1990-559961 A2 19900727

AB Methods for detecting specific nucleotide sequences use a solid support, .gtoreq.1 label, and hybridization involving a nucleic acid sample and labeled probe(s). Hybridization of the analyte polynucleotide and the probe results in the label being bound to the support through a selectable cleavage site. Label not bound through the cleavage site is removed from the support, the cleavage site is cleaved with a restriction endonuclease for the site, and freed label is detected. Fragments of the hepatitis B virus genome extending .apprx.60 bases in the 5'-(fragment 3) and 3'-direction (fragment 2) from the BamHI site at base no. 1403 were used in a probe capture hybridization assay for fragment 4 analyte (complementary to the 3' end of fragment 3 and the 5' end of fragment 2). For the assay, fragment 3 was treated with adenosine 5'-O-(3-thiotriphosphate) in the presence of T4 polynucleotide kinase and then attached by the 5' end to bromoacetyl controlled-pore glass, while fragment 2 was 5' labeled with ATP-.gamma.-32P. The immobilized fragment 3 (3 pmol) and labeled fragment 2 (5 pmol) were reacted with varying concns. of fragment 4 under hybridizing conditions. The support was washed with BamHI buffer twice and then incubated for 30 min at 37.degree. with BamHI. The supernatant plus 1 water wash was counted.

IT Glass, **oxide**
RL: ANST (Analytical study)
(reaction products, with DNA, in **probe** capture hybridization assay using restriction enzyme **cleavage** of label)

L2 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 1977:494339 CAPLUS
DN 87:94339
TI Ionicity effects on compound semiconductor (110) surfaces
AU Bauer, R. S.
CS Palo Alto Res. Cent., Xerox, Palo Alto, CA, USA
SO Journal of Vacuum Science and Technology (1977), 14(4), 899-903
CODEN: JVSTAL; ISSN: 0022-5355
DT Journal
LA English

AB Properties of clean and controllably **oxidized** surfaces of in-situ **cleaved** GaAs, CdTe, ZnTe, ZnSe, and ZnS were **probed** by synchrotron radiation-induced photoelectron spectroscopy. Variations in submonolayer O2 adsorption due to changing semiconductor ionicity was studied. A roughly exponential dependence of O2 sticking coeff. on electronegativity difference correlates well with ests. based on other techniques when the mol. state of the adsorbate is considered. When the O2 interaction was monitored by means of the semiconductor substrate core-level chem. shift, changes in surface bonding with ionicity were shown by the cation behavior. The predominant angular momentum of the intrinsic empty surface states is an important characteristic. The dipole selection rules governing photoemission partial-yield transitions showed that significant anion s-like empty surface state d. exists on all (110) surfaces studies. Increasing ionicity appears mainly to change the at. character of cation-derived empty surface states from p- to s-like. Core-level transitions to these surface states are strongly influenced by final-state effects. The self-consistent measurements of p-core exciton-binding energies showed a large increase in surface final-state effects with increasing ionicity, while bulk conduction-band-edge excitons became weaker. The varying bonding requirements and possibly the assocd. surface-atom positions provide a unifying concept for understanding these ionicity effects.

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L2 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2003 ACS
AN 1973:71082 CAPLUS
DN 78:71082
TI One-electron vs. two-electron oxidations. Vanadium(V) and manganese(III) oxidations of cyclobutanol
AU Rocek, Jan; Radkowsky, Annette E.
CS Dep. Chem., Cathol. Univ. America, Washington, DC, USA
SO Journal of Organic Chemistry (1973), 38(1), 89-94
CODEN: JOCEAH; ISSN: 0022-3263
DT Journal
LA English
AB Vanadium(V) oxidizes cyclobutanol in high yields to the ring cleavage product, .gamma.-hydroxybutyraldehyde. 1-Methylcyclobutanol reacts about 9 times faster than cyclobutanol, oxidn. of 1-deuterocyclobutanol is accompanied by a low D isotope effect, and cyclobutanol is .apprx.1000 times more reactive than cyclohexanol; all support the mechanism consisting of a rate-limiting ring opening reaction leading to the .bul.CH2CH2CH2CHO radical as the first reaction product. The presence of Mn(II) in chromic acid oxidns. of cyclobutanol has a strong accelerating effect on the reaction, leading to a large decrease in the D isotope effect and to a large increase in the reactivity of 1-methylcyclobutanol. The yield of cyclobutanone decreases and that of hydroxybutyraldehyde increases with increasing concn. of Mn(II) in the system. These observations are consistent with a mechanism in which the effective oxidant is Mn(III), formed probably by the reaction Cr(VI) + Mn(II) .fwdarw. .rarw. Cr(V) + Mn(III), reacting via the same free radical intermediate as vanadium(V). Both results strongly indicate that cyclobutanol reacts rapidly and smoothly with one-electron **oxidizing** agents under ring **cleavage**, and can be successfully employed as a **probe** for 1-electron **oxidants**
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